

POPULAR Computing WEEKLY

12 August 1982 Vol 1 No 17

35p

Street Alley on Vic 20

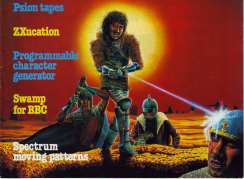
Psion tapes

ZXucation

**Programmable
character
generator**

**Swamp
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The Team

Editor

Brandon Goss

Reporter

David Kelly (01-630 3211)

Sub-editor

Peter Harvey

Editorial Secretary

Fiona McCormick

Advertisement Manager

David Lake (01-630 3644)

Advertisement Executive

Alexander Macintosh (01-630 3640)

Managing Editor

Darwin Goss

Publishing Directors

Johnny Ireland
Nick Hampshire

Popular Computing Weekly

Hobhouse Court, 11 Watlington Street,
London WC2
Telephone: 01-630-6808

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How to submit articles

Articles which are submitted for publication should not be more than 1000 words long.

All submissions should be typed and double spaced (must be left between each line).

Programs should, whenever possible, be computer printed.

All (printed) we cannot guarantee to return every submitted article, so please keep a copy.

Accuracy

Popular Computing Weekly cannot accept any responsibility for any errors or omissions we publish, although we will always try our best to make sure programs work.

This Week



Cover illustration by David Hughes

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Editorial

The government's scheme to put a micro in every primary school in the UK is a laudable idea (PCW August 15) though a scheme to put five or 10 micros in every primary school would have been better.

But, there is one part of the scheme that strikes a discordant note. For a school to qualify under the scheme, it must choose from one of three different micros — Sinclair's 48K ZX Spectrum, Acorn's BBC micro model B and Research Machines' 4802.

Microcomputer manufacturers were not invited to tender for the scheme. The government also failed to produce a list of specifications that manufacturers had to meet in order to be placed on the approved list.

Instead, three micros were selected: "using the experience of the education departments' microelectronic programmes and with advice from educational advisers".

The scheme has undoubted benefits for the chosen manufacturers. Apart from a potential market of 27,000, there are incalculable advantages in familiarising future generations with a particular manufacturer's machine.

Many manufacturers not on the approved list have reason to feel dissatisfied with the government.

Next Week



Report waves of lightning in Alan Meek, a 16-machine code game for ZX81.

Adams is first with Spectrum Ram converter...

HARDWARE: specialist Spectrum Adams has designed a Spectrum-II converter that enables a 1Mk Ram pack to be added to a 1Mk ZX Spectrum, giving 32K of memory.

The converter will also allow the Spectrum to use most of the 256K peripherals which operate in the top 32K of memory.

The converter costs £7 and will be on display at the ZX Meeting in London on August 23.

Inquiries to: Spectrum Adams, 1 Lovers Road, London N16.

... plus add-on Ram from DK 'Tronics

DK Tronics has produced the first add-on Ram board for the ZX Spectrum.

The unit converts a 1Mk Spectrum into a 4Mk model in the same way as the official Sinclair Ram board.

The 32K board costs nearly £20 less than the Sinclair equivalent and, unlike the official board, it can be fitted by the purchaser.

David Hicks of DK Tronics said: "There is no need to visit specialist computer retailers. Fitting the board is relatively simple."

The company has no plans to produce boards with more than 32K. Says David Hicks: "32K is a good size. With the money floppy on the way there will be no market for larger boards."

The 32K add-on costs £29.95 (plus £1 p & p) and is available either at the 1Mk ZX Fair at home (DK Tronics, 21 Savers Road, Gillingham, Norfolk).

4th ZX Fair due in two weeks

FINAL preparations are under way for the 4th ZX Fair at the New International Hall, Chancery Street, London SW1, on Saturday, August 21 (10.00-6.00).

Over 100 exhibitors will be there and organisers Mike Johnson is confident that it will be a success.



The Colour Genie... 128K Ram, 1Mk Plus for £185

Colour Genie for mid-September

THE answer to the Genie will arrive in the UK next month.

Costing £185, the new Colour Genie features 128K Ram, 1Mk Rom, eight colours and three sound channels.

The machine, manufactured by Lucas International in Hong Kong, will use a Ram version similar to that on the current Genie and software will be compatible.

The 40 x 34 character display can be programmed to produce 160 x 80 resolution line graphics.

Up to 16 colours can be generated by programming and, in addition to the 128 alpha-numeric characters, there are 64 pre-programmed and 128 programmable graphic characters.

The Colour Genie has two parallel ports, programmable

serial port and provision for a plug-in games cartridge. Plug-ins have been commissioned to write software for the new units.

The machine is expandable with a plug-in 128K Ram cartridge. Once will follow — hopefully to be demonstrated at the Personal Computer World Show in September.

Lucas Electronics are the sole importers of the Colour Genie. Robert Neal, head of the Computer Division, said: "We already have several thousand orders and we are hoping for great things from the product."

Initially the machine will be sold by mail-order and through existing Genie resellers.

Contact: Lucas Electronics, 4300 Midfield Road, Watford, Hertfordshire.

Tangerine have a Tigress in their tank

TANGERINE has announced that its new Tigris TIG-1000 microcomputer will be launched in mid-October.

The triple-processor machine will sell in two forms.

The basic Tigress, with 1Mk of program Ram and 96K of dedicated graphics memory, will cost £195.

A more advanced machine incorporating a 32-resolution colour monitor and two double-sized, double-density disc drives will probably cost a further £200.

It will be possible to upgrade the basic Tigress.

Both machines are based around the 68010 processor and use a 68010 chip to handle the input/output routines and



Attractive impression of the Tigris... a third processor to run the colour graphics.

The two variants use a modified version of Microsoft's L.I. Basic.

The Tigris TIG-1000 is supplied with a full-size keyboard, Commodore and BASC interfaces, Personal Modem (with built-in auto-dialler), cassette interface, parallel Ram buffer's back-up and light-pen and co-working ports.

Apple acts to halt sales of illegal mirrors

APPLE has acted to stop the illegal manufacture of localising Apple mirrors to two Hong Kong companies.

In law suits brought against the two companies Apple Computers claims infringement of its trade marks, patents and copyrights.

The counterfeit mirrors, almost indistinguishable from real Apple II machines, are apparently being sold in Hong Kong for as little as £200. The companies' familiarity with the price of the official Apple II of about £340.

For every genuine mirror sold, about ten copies are bought. It has been estimated that the output of these clandestine back-street businesses could be as high as 5000 per month.

The patents claimed to be infringed relate to the mirror video unit. Apple also claims that copyright of its logo and instruction manual have been infringed.

The initial action is seen as the first of a series of moves to halt the flood of counterfeiters from over 100 illegal assembly companies.

Although Apple is seeking damages related to lost revenue and interests of the offending machines, the main purpose of the initial action is to prohibit the copying.

These moves come in Apple — facing stiff competition — announced encouraging third-party financial results.

Commodore joins classroom battle

COMMODORE is to set up their own Educational Unit to encourage the use of their and Visi in schools.

This move comes in a reaction to their exclusion from the government's "Matters in Schools" grants scheme.

Students' battles will limit the opportunity to facilities of Larchfield Primary School to head the unit in September.

A spokesman for the American company said: "The unit will further our educational interests. Already there are many Commodore machines in schools (there are other users).

Letters

write to Letters, Popular Computing Weekly, Robinson Court, 18 Whitcomb Street, London WC2E

When 16K is not OK, OK?

I would like to draw your attention to what may be quite a frequent occurrence.

I recently received the ZX Spectrum 1 enclosed, but when I had paid for a 48K machine, I found out—quite by accident, that 16K of it was missing.

I had attempted to copy:
0000 000000

The gave an out-of-memory error. When I rang Sinclair they told me to enter the following command. It may be worthwhile trying this just to make sure you've got a 48K machine.

PRINT PEEK(27004)-16192

If you have paid for a 48K Spectrum and you get the answer "16K" for as I got, 161982 then you either have a faulty machine or you have been sent a Spectrum with only 16K.

David Powell
129 Chestnut Grove
Bathurst
London E8 3J2

And three hours use is not OK

I ordered my Spectrum on 1 May 82 and it arrived on July 1.

I used it for three hours that evening and, the following morning, after two minutes use, the screen went black and smudges appeared from the rear. It is now on its way back to Sinclair.

Is this a record?

Michael Mitchell
P/O 1

127 Queens Road
Bury St Edmunds
Suffolk

And a Rom bug is not OK!

Perhaps powered for a check. It is driven and have completely ready ready to telephone for an ambulance? There is a 8450 in the ZX Spectrum Rom.

You don't believe isn't OK, this will prove it. Type a short

program. Type in a line number you bigger than the last line of the program and at line 100, type in 8450. Now press Enter.

Yes, the last line comes down, how is does the program finish? Well, that just about says it up—doesn't it? Sinclair Research is inquisitive? Clear driving a mini? No — it is still a great computer.

Paul Morrison
17 Broom Oak Lane
Woking
Surrey

Just keep soldering on

Last November (Pop! London Special, P/O 16 July 81) I also had the problem of a loose power jack plug on my ZX80. The solution I found is very effective and simple if you have a soldering iron.

Remove the upper half of the case to expose the printed-circuit board. Cut or desolder the jack-plug from the power lead and thread the lead through the socket. Gently pull the two outer clips upwards and pull the leads past them.

The leads can be staggered or insulated at the ends and soldered onto the clips. Make very sure that the positive lead (striped black and red, or in some cases black and white) is connected to the right-hand clip (which would normally connect the jack-plug top) and that the pin-leads to be connected to the left-hand clip.

Note, however, that this procedure will render your guarantee void, but it solves the problem and a much more serious cause than using anything else, such as crocodile clips.

When the jack plug has been removed, and before the leads are soldered to the ZX80, is a good time to fit an earth terminal into the power lead. This should be fitted between the power pack and the ZX80 and not between the power pack and the mains.

I also wedged a small piece of rubber into the socket, alongside the power lead so that if the wires were accidentally pulled this would

take the strain rather than the solder joints.

James Turner
26 Spring Street
Bathurst
Bristolshire
London

Yes... we all have our faults

I have just received my BBC Micro Model B and wonder if anyone has the following my serial fault.

The action is completed by one dot per character, in a matrix of 40 x 24 dots, whatever Mode 7 (the left-hand-compatible one) is called. This matrix can however be overwritten in Mode 7 (a bit confusing) and disappears in all other modes.

I tried your Open Screen Modem (June 82, page 12) program and wonder what you are going to publish the rest of the program, since line 60 is clearly not the last line needed. Are there the missing lines?

see a matrix — transverse are 40 00000000

I would like to congratulate you on the future program in the next month issue; it well deserved the first Program!

Dr David Parker
1 Elmway
Bathurst
Bristolshire

Then time for 8450s will work. The symbols for the machine.

Some have many faults

An enthusiastic Sinclair user (As mentioned in your issue) was (informed) in the letter from Sinclair Research (PCW July 82) which stated that "no ZX80s with faulty Roms were shipped to customers after July 1981". I received a ZX80 that bought ROM 8.20 was about 1.5 in June 1982. The machine and 16K Rom pack were ordered at Christmas 1981 and the same arrived in January 1982. Attempts to run FORNMENT have caused a crash. The ZX80 was returned to Sinclair.

I received a Rom pack. When the ZX80 came back it

could never enter more than 25 lines of a program with the Rom without crashing. The Rom pack was returned to Sinclair.

I discovered ROM 8.20 was not 1.1 in June 1982. The ZX80 was returned to Sinclair.

Third ZX80 and second Rom pack received. The system crashed repeatedly in the Rom. The Rom pack was returned to Sinclair accompanied by a request for my money back.

Fourth Sinclair have not been able to trace my order, or any record of my return.

At no time have I received any technical advice or help from Sinclair Research, despite writing to describe the faults on each of the five returns I have made.

Sinclair has had my money since Christmas and as no time more have I had a working continuation of ZX80 and 16K Rom pack.

You won't find me buying a Spectrum!

CJ Elmore
1 Orchard Lane
Cusker Bldg
Wells
Somerset

But finally someone's happy

Perhaps someone paid out for the ZX Spectrum as I use all the programs for my Vic20 with a Super Expander Cardridge. The programs are easily converted and work well.

But, please could you have a screen devoted to the Vic20 for people with this cardridge as I think that the manual supplied by Commodore for it does not explain fully the art of programming in machine graphics.

Giles Archer
Farnside
Worcester Road
No Worthington
Bristol

We shall continue to publish the Spectrum page. There are no plans at present to have a Vic20 page but on that of course continue to print articles and programs for the Vic20 as at present.

Street Alley

A new game for Vizio®
by Robert Mayhew

London has been devastated by a nuclear war. Most of the population died in the blast, or from the radiation poisoning that followed.

The survivors have formed themselves into a number of small, close-knit, gangs that compete with each other for what little food remains. The rule of law has broken down. Only the gangs remain.

Each gang controls a well defined area of territory. Outsiders who trespass on a gang's "patch" are killed without compunction. It is a dog eat dog world.

But, in a bid to stop the endless feuding, the gang leaders agreed to hold a meeting and the rules of Ramsey. All the gangs attended, unarmed and under a flag of truce.

However, just when it seemed that a peace treaty would be signed, Chris Tanner, leader of the friendly Romans, was assassinated. Suspicion immediately fell

on you and your gang, the Brown Hawks, because a Brown Hawk knife was found in the body.

In fact, it was a set up. Tanner was killed by his number two, Duncan Kelly, who wanted supreme power over all the London gangs.

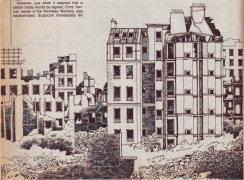
With the other gangs united against you under the rathlesson Duncan Kelly, you must fight your way back across London.

But, there are a number of hazards to be overcome. Armoured cars, driven by crazed gang members, will mow you down unless you can dodge them. There is a

polluted river that can only be crossed by jumping from one log to another. Falling off a log, or crashing into the river bank, will prove fatal.

The object of the game is to get free of your shack into the main town at the top of the screen.

The Brown Hawks will follow you un questioningly but you will have to exercise all your skill to return home safely. Press any key to start.



Street Alley

```

220 DEF=STHND:A=4+1 H=4+1:RETURN
230 REM
240 POKE26877,220:FORL=15700STEP-1:POKE26876,L:FORL=170:60:HEXTLL
250 POKE26876,0:POKE26877,0:G=0+:POKEA+P,32
260 DEF=STHND:G00
270 A=0:G=0:H=10:TL="000000":RETURN
280 POKE26877,252:FORL=15700STEP-1
290 POKE26876,L:FORL=170:60:HEXTLL
300 POKE26876,0:POKE26877,0
310 A=0:G=0:H=10:TL="000000":G=0+:LFI=STHND:G00
320 RETURN
330 IFDEFX(A#F)=0:STHND:415
340 RETURN
350 IFDEFX(A#F)=0:STHND:RETURN
360 IFDEFX(A#F)=0:STHND:RETURN
370 G00:G000
380 RETURN
390 IF(A#F=770000#F=770000#F=771000#F=771500#F=772000#F=772500)
400 G00:G00
410 H=0+:IFG=STHND=G-1:G0 IFG=0:STHND:G=" 000  "
420 IFD=0:STHND:G="  00  00  00"
430 IFD=40:STHND:G=" 3300 0000  "
440 IFD=20:STHND:G=" 000  330  000  "
450 IFD=0:STHND:G="  0  00  00  00  "
460 IFD=STHND:G=0
470 POKEA+P,0
480 G=0:G=00
490 POKE26876,10:FORL=0:G015
500 FORP=0:20:G020=L02:POKE26876,H
510 HEXTLL:POKE26876,0:POKE26876,0
520 IFG=STHND:G00:G000
530 A=0:G=0:H=10:TL="000000"
540 RETURN
550 G=0:G=00:G=00
560 POKE26876,10:FORL=130:G020:POKE26876,L
570 FORL=170:60:HEXTLL
580 POKE26876,0:POKE26876,0
590 FORP=0:20:POKE7700+P,32:HEXT:RETURN
600 G00:G000
610 G07:G00
620 POKE26876,0:POKE100,0
630 PRINT "T 00"
640 PRINT "00000000"
650 B=0:TL="STHND: 00:100"
660 TL=G="":TL=0:G015
670 G=0:G=0:G=0
680 POKE100,10:POKE100,20:POKE100,0:G15
690 FORL=0:G020:1
700 POKE7700+L:POKE7700+L+1:HEXT
710 FORL=0:G020
720 READ POKE7700+L+0:0:0:HEXT
730 DATA 50,100,120,140,160,180,200,220,240,260,280,300,320,340,360,380,400,420,440,460,480,500,520,540,560,580,600,620,640,660,680,700,720,740,760,780,800,820,840,860,880,900,920,940,960,980,1000
740 G07:G015

```

Street Life

All's fair in Manchester and Edinburgh

PCW staff report on the Manchester and Edinburgh micro fairs.

Over 4000 visitors found their way through Manchester's congested warrenous warrens to the city's Market St.

Held at UMIST on July 24 and 25, there were more than 70 exhibitors and continuous lecture and film programmes.

Interest for the home micro owner centred on equipment for the Sinclair ZX Spectrum. Both Pulse Micro Systems and Kempton (Micro) Electronics displayed additions for the Spectrum — a sound box and a motor-board plus I/O port, respectively. Spectrum software was also on display at the Richard Mannan stand.

Manchester organisers, David and Lillian Hewitt, were more than pleased with the show. David titled: "The whole event has been a tremendous success."

David was surprised at the difference in the audiences for the two days, the Sunday indeed was more business oriented, while the former more enthusiastic tended to come on Saturday.

It is unfortunate that more events seem to come in pairs. Those who attended the Manchester Microcon in preference to the Edinburgh ZX fair saved their computers by crossing the road to the nearest public house — The Shering Broom.

During the course of the two-day blitzing a series of lectures were presented.

Alan Brown (St Martin's College, Lancaster) spoke on 'Computer programming for experimenters', he explained the basic stages in the construction of a Z801 input/output interface. He also demonstrated how to select the pins for parallel I/O operation, how to calculate their



Paul Skusek, told the attention of computer from each other and that nature to select by computer?

addresses and how to set up a simple control device. The device enabled him to use a Z801 to start and stop a model electric car.

Boris Alan (Senior Lecturer in Science, Manchester Polytechnic) tackled 'The BBC Computer in education'. He put forward his philosophy, "ignorance of computers is not a crime to be ignorant of computers can be a disadvantage; understanding computers requires no special type of ability; and everybody has to start somewhere."

Boris felt that the emphasis of computer education should be placed on computer awareness for everyone rather than computer studies for the few.

Paul Skusek (producer of the BBC's series 'The Computer Programme') posed the question is Computer Literacy Really Necessary?

"No other new technology has ever been introduced with such a fanfare," he said. "In its time the motor car was very far as significant a development — but there was no government department set up to give us car awareness."

"People say for themselves that the car was a good idea. Why are computers different? And why make this entire private 'computer literacy'? The impression is given that — come the computer revolution — everything will be all right."

"Like other fads, you do not ask for evidence. Nobody asks how the computer is going to solve the problems in our society, tell the situation of ourselves from each other and from nature, to say nothing of our current materialism, is solved by computers?"

"People believe that computers will be the answer because they do not understand them. Computer literacy should give us the appreciation and therefore show us to make the most of it."

Stephen Adams (specialist hardware seller) delivered two lectures, inside the

Spectrum-based the printed-circuit board of the Spectrum micro. Keep it Simple explained how to begin programming and how to make your programs easily understood by others.

Eric Jackson (Educational ZX User Group) looked into the future of micro in schools.

"To get one computer in a school is not the end of educational computing — it is the beginning," he emphasised. The trend towards cheap powerful micro will enable schools to take a more liberal approach to micro-education.

"What is needed," he said, "is computer-aided freedom, rather than the bottom line approach with children in computer learning obstacles. The micro must open our educational horizons rather than restrict them."

Edinburgh ZX Computer Fair

The first true home computer exhibition in Edinburgh was an undoubted success. Nearly 1000 visitors attended the show which was organised by Gordon Hewitt and the Edinburgh ZX Computer Club.

The exhibition was held in the long concrete reception hall of Edinburgh's Morningside stadium. The hall also had a large stand at one end of the hall. The rest of the exhibition was arranged in a neat line of tables extending about 50 yards down one side of the hall, leaving plenty of space for the visitors to sit around.

The main interest seemed to focus, understandably, on the ZX Spectrum. Those companies displaying the first Spectrum programs did particularly well, certainly in drawing a large crowd of permanent target-ers. The Spectrum Space Invaders program was the most popular there.

We had a Spectrum on the Popular Computing Weekly stand. It drew a crowd of young enthusiasts, each showing the others' ability to program it properly. Many people actually tried to buy out only copy of the manual.

One reviewer complained: "But I need another copy. My dog buried some somewhere in the garden. He is always burying my books. Normally I know where he's put it but this time I have had to give up. It's probably too late now. Next time I'll wrap it in polythene."

The imaginative organisation of the show by the Edinburgh Club — competitors, on the full length of the exhibition — kept many of the visitors right to the end. It proved quite fortuitous that there is a stronger home computing following in Scotland than in other counties. The organisers hope more software and hardware companies in this business show their support.



A study in concentration... at Manchester

Reviews



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Student-Person Timeline

Keywords: Assessment, Competency, Survey
and branches of H.A. (2007).
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Please say that natural selection leads to
more or less random change with time.

Two of the types are garnets, two of them produced by Microgen under the Pease harvest, and the packaging is eye-catching.

Chess (old-tells, one of the MicroGen tapes, says that it's slipped from its previous price). There are no levels of play in the program, and there may be changes in mid-play. The board may also be set up for problem solving. All legal moves are recognized. A good, solid program. The tape includes a chess clock, too. **B**

Space Raiders (Number 1249) is the other Morgan-type *Space Raiders* is... you guessed it, from... But even a mother ship is required to launch the torpedoes. (Number 1249) is the other Morgan-type *Space Raiders* is... you guessed it, from... But even a mother ship is required to launch the torpedoes. (Number 1249) is the other Morgan-type *Space Raiders* is... you guessed it, from... But even a mother ship is required to launch the torpedoes.

The rest of the programs are Fun's own products, a couple of which were available before the Bitnet connection. *Markemmer* (\$3.95) is the only program I know of which plays my favorite board game, and it was a must when I was in school some months ago. It has since

underpins a helpful operation, self-response times being made faster. Like *Four programs* it has great visual appeal. Relying on the board in the accompanying explanation are the ideas and features there, a list which shows the moves made by computer and human opponents. On the bar you can see the thinking time, when the program is intelligent enough to offer a (the only) comment.

While the group are well versed in all the recognized meanings, I am a little worried at its tendency to flip out its back most often only two or three times, which leads to a game of coloring attention. This happens, in my experience, about three-four of five games, but it is easy to break the game, and start again. All in all, however, a very good program, and a very rewarding one. Scorpian is indeed *Paradox* (Score: 9.5/10) as the games on the other previous available tape, and are very good value. *Paradox* (Score: 9.5/10) is a classic which the player has to release and react to safely. It's really more of a board game than an adventure, but along the way you will meet various monsters and pick up bits of treasure or weapons with which to battle or kill them.

Shogun's board is a gridded adventure, in which you take a Sunday-morning stroll around a paradise island, Lavenholm. Of course, apart from the giant rats, mini-tanks, and so on! Again, you can trifle or fight, or not even. Reaction times are a little slow, but is nice knowing someone keeps release you from the 2D-collected-games for a year, and still not succeeded in *Shogun*. **B**

Flight Simulation (FSI-86) is the final games tape in the package from Polar. For words can do justice to the most elegant of programs — in my opinion the best use of machine-code yet written for the C64.

You are placed in the pilot's seat of a main-entrance group plane, sometimes referred to as a landing strip, and your job is to land safely. There are several modes, but they all feature the same cockpit display of altitude, air counter and so on, together with a view from the cockpit window. This shows the horizon, which will show the degree of bank and rate of climb or descent. This is all displayed in a most readable way.

To help you find the runway, you may call us at 780-225-2222, and this, together with several brochures, will guide you to the three approaches. At this point, you may ask for a visual approach, and this will consist of a 3D representation of the runway and approach lights. As in real life, an eye must be kept on every aspect, and the plane lights have to stay.

THE UNIVERSITY OF CHICAGO

For more information, contact: David@DavidRosen.org
 800.426.7826

As its name suggests, MyFile is a file sharing and retrieval system. The difference between file and file servers is that file servers are available to all the machines on the network, and can be accessed by all the machines on the network. The difference between file and file servers is that file servers are available to all the machines on the network, and can be accessed by all the machines on the network.

Once a plan is formulated, the first step is to assign the various activities, functions and tasks to an individual or individuals responsible for their completion. This is called *responsibility assignment*. Once this is done, the next step is to assign the various activities, functions and tasks to an individual or individuals responsible for their completion. This is called *responsibility assignment*. Once this is done, the next step is to assign the various activities, functions and tasks to an individual or individuals responsible for their completion. This is called *responsibility assignment*.

Community includes an analysis of needs, and identifying policy, regulatory, state, and federal legislative options.

The companion tape to *MacFile* is *MacQuic*, the its name suggests it is a quick version of *MacFile*. Naturally limited by the 720K Mac, it is nevertheless a very useful quick-forecast system for the home user or the intermediate businessman who does not need a word processor.

The program will do it within 30 or 60 seconds, which can be filled with numerous mathematical data. Formulas can then be applied to these data, in many different ways. The user can define the horizontal rows as, for instance, mortgage rates, gas, electricity use, and the vertical ones, as January, February and so on. Data for the various months may then be input, and formulas set. The data will be displayed in the screen, sheet. Any data may then be changed, and the effect on the whole noted.

10

The Patient Incentives are a welcome change from the usual ruse of Medicare "incentives" (from any source). Achieve good values, but it would single out Payer Simulation for special mention — you will not see a better games program, until Payer creates one for the "openmarket," and we go to (and are a) large attempt to eliminate much more expensive packages (and certainly more so, for us in simulation) into the "openmarket."

Reviews



Character Generator

Home Hardware, 1100 Main St.
Burlington, Ontario
Phone: (709) 661-1111

This board allows you to use the inverse parameter (usually write on back of your OAD) or CHRT to program your own threshold and set.

The 24 character set is made up of characters such as one byte (primary), leading nibble and eight bytes length. Each byte contains eight bits, which can be used to force going either black or white, etc.

With the `GOAL`, any of the 64 characters can be changed by placing the appropriate bit pattern into the various bytes that make up that character. On this board, there are two inverse character sets and using `Print` commands, you can alternate between them. Unfortunately, there is no way to restore the original Postscript `Print` character set other than using the board.

The board can be connected quite easily to the Z800 by plugging in a ribbon cable and plug into the front-panel connector, turning the front to a greater angle on the characters board. There are two alternatives to solder on to the printed-circuit board and this can be quite difficult as the connections have to be made to both sides of the printed-circuit board.

On the D881 that is a very nice because it was not possible to connect the board. I suggested since that would have involved identification of the tape sockets. An attempt was made to take it off. On the other side of the D881, but then the case would not fit on. In the end, since the board is too long to fit under the D881 keyboard, the case had to be left off in order to use it. This was to the rear of the connections had to be traced but on the printed circuit board as the circuitry was still visible.

On substituting an *ys*, are presented with a random pattern of dots instead of the name. The normal characters come out the same, but as the fourth character for *has* been replaced with dots all the model characters are now incorrect. 10/2/71

A program is provided to reveal the true meaning of the word and its consequences.

The reverse character set — called *Reverse Into Programs*, but the instructions fail to mention it. Two other programs are included: a graph plotter which fails if trying to plot at zero in below and a double-size character generator which I could not get to work. A chart is also provided to help you design your own characters and is about the most useful thing in the instruction.

100

More interesting character than other characters
was. But I would much rather spend the
whole night and have some company.

Search in RAM

General Manager, Farnham Company,
Burlington, VT

The Sinclair add-on-LINK Mainboard for the ZX Spectrum must be fitted by their factory in Scotland so, if you wish to purchase this board after buying a TOP Spectrum, you must send the Spectrum back with the order.

This feature is a jolly lifesaver if it is so easy to fit the film by simply inserting it into the sockets provided on the back part of the printed-circuit board. The sockets for the end-on boards are provided on every 1/8-inch, and it can only be fitted into them one way round. The pins on each end of the board are double-ended. There is little chance of

The latest version, eight Flare chips (MPC-410) made by Texas, has two floating chips, two charge-over chips which operate when the dynamic Flare needs to be refreshed and eight small control chips to smooth the power supply to the Flare.

The decision is simplified by the fact that only one address line is needed to address all of the chips (A15). When this is done it's trivial to turn the RAM on. There's no need to test the computer how much memory is available (as on the Z80) since it is automatically counted from ROM downwards. Also, all the RAM can be used for machine code or Basic programs. This means that there is no space left for I/O ports etc in memory. The RAMs used on the board are standard Texas components. They appear to be similar to 65K64x1 bit chips but only contain 32K. Could they have been Texas parts? Only Sanyo seems to be able to get hold of one.

The total work rate and the substrate increase in fold from the resting requirement to allow steps of overtraining have been related with it in use. The above work article is an interesting account of

all other equipment is connected to the edge controller and the WAN port has its own connection outside and is fairly fast.

It is not possible to turn off sections of the beam for more temporary or other devices from the edge connector as beam C&B (who connect) is not provided. This is a great pity as not everyone wants to be spanned or used. The manufacturer seems to consider

1

The Plan Board is well made and should cause no problems in use. However, in the units the 230 Spectrum must be sent back to the factory. This is a great disadvantage, as is the price of \$50. Other Plan Boards are better to the available good with at least the same amount of Plan which may provide a Plan 230 to Plan other devices can be used with the Plan Board.

Prerequisites: 3301

By Dr James and Dr Goss
 Richard Nelson Ltd, The Corporation,
 Stephenson Road, Fleet, London SW17 7AF
 (Tel: 01-894 1001)

Available from larger branches of all the
banks.

The Art of Programming for the C++201 is a simple yet professionally produced book of 361 pages. At £1.99 its price bears a close resemblance to normal books that competing books, which for some reason are still usually overpriced.

It is a well written and carefully thought package which does for many the same as a series of 10 games. Each chapter introduces and explores a different topic, explores a few ways of using the technique (with illustrations of simple programs) and then shows you how to build up more programs. In this way you gradually end up with a couple of chapters out of each chapter.

These include card games in the chapter on random numbers, process, long tender and cannon-fod in the chapters of moving graphics, clocks and reaction time testers in the chapter of the use of Paul, Rime and Pausus, and codes and engines in the chapter on video recording.

There is also an excellent short chapter introducing the Peak and Poiné functions. This should do much to dispel the mystery for some reasons still surrounding these two commands. There is also a useful log file.

A very useful and well written book which can strongly recommend for new users of the JCR. It is a pity that the book has arrived on the market so late in the day for new JCRs.

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Each week the editor goes through all the programs that you send to Open Forum in order to find the Program of the Week.

The author of the program will qualify for DOUBLE the usual fee entry for published programs.
(The usual fee is £10.)

Presentation style

Programs which are most likely to be considered for the Program of the Week will be computer printed and accompanied by cassette.

The program will be well documented, the documentation being typed with a double spacing between each line.

The documentation should start with a general description of the program and then give some detail of how the program has been constructed and of its special features.

Listings taken from a CII Printer should be suitable convenient lengths and carefully check them on to white paper, avoiding any creasing.

Please include a stamped, self-addressed envelope.

Simon

on BBC Micro

Simon is a program to simulate the electronic game of the same name. It runs on the BBC Model B and demonstrates some of the interesting colour graphics and sound facilities of the BBC.

The program starts by switching off the colours RED, GREEN, YELLOW and BLUE. A circle is then joined with each colour assigned one of the four colours. The screen remains blank as all these colours have been turned to blank. On the issue of a VDU's commands the colours can be turned on and off at will.

The computer flashes up a segment of colour accompanied by a sound (each colour has its own sound). You then have to repeat the colour by entering R, G, Y or B. The computer increases its sequence of colours and sounds by 1 until after a

to next page

Simon
by D M Dackworth

```

1 CLR
2 FOR I=1 TO 20:PRINTNEXT I
3 PRINT CHR(141) "          " CHR(141) "
4 PRINT CHR(141) "          " CHR(141) "
5 PRINT:PRINT " PRODUCED BY: A.P. and B.P. Dackworth"
6 PRINT "          55 Belgrave Drive"
7 PRINT "          BRASSGATE FLINT"
8 PRINT "          Buxton"
9 PRINT "          Nottingham NG9 9PL "
10 TIME=0:REPEAT UNTIL TIME=200
11 CLR
12 PRINT:INPUT "Do you need instructions (YES/NO)";A$
13 IF A$="NO" THEN GO
14 CLR
15 PRINT:PRINT
16 PRINT "          INSTRUCTIONS"
17 PRINT "          ====="
18 PRINT
19 PRINT " This is a computer version of the"
20 PRINT "Popular electronic game 'SIMON'.The"
21 PRINT "computer flashes a segment of a circle"
22 PRINT "and plays a note.You must follow it."
23 PRINT "If a blue segment was shown,type 'B'."
24 PRINT "For red type 'R',green 'G',and yellow"
25 PRINT "'Y'.If blue was red was flashed blue"
26 PRINT "type 'B',and so on.The screen will be"
27 PRINT "blank for a few seconds at the start"
28 PRINT "of the game,don't worry.Good luck!"
29 FOR I=1 TO 2:PRINTNEXT I
30 INPUT "      press RETURN for command"OK
310 DIM STORE(10)
315 MODE 3
320 PROCIRCLE
330 FOR I=1 TO 10
340 STORE(I)=RND(4)
350 NEXT I
360 FOR A=1 TO 10
370 PRINT TAB(I,20):SPC(20):
380 FOR B=1 TO 4
390 TIME=0:REPEAT UNTIL TIME=20
400 VDU I%,STORE(B),STORE(B),0,0,0,0
410 ON STORE(B) GOSUB 390,420,430,390
420 TIME=TIME
430 REPEAT UNTIL TIME=75:GO
440 VDU I%,STORE(B),0,0,0,0,0
450 NEXT B
460 INPUT TAB(1,20):NOW REPEAT "Y":
470 L=LEN(A$)
480 IF L=4 THEN GOTO 310
490 PRINT TAB(1,20):SPC(20):
500 PRINT:GOTO 310:GOTO NUMBER OF ENTRIES 1
510 TIME=0:REPEAT UNTIL TIME=200

```


Open Forum

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- D. Provides print co-ordinates for questions in lines 330-380.
- E. Checks through question to provide better print spacing when question is called in lines 410-500. It actually only needs to be FOR C = 100 D. If lines 230 and 240 are amended this may also require alteration.
- C. Checks for winner by comparing the relevant elements of 100 array for 0s and 1s in lines 710 to 790.
- E. Entrance loop using 80 in lines 860-880, 1210-1260.
- T. Indicates player's turn by calling relevant element from 60 array and also decides which symbol to print in lines 410 to 500.

Numeric:

- E. Question counter in print routine from 200 to 300.
- F. Flag set in print loop lines 470 to 515. Because it is possible to jump out of a loop in 30 (last) loop 475, 476, 477 and 510 may be safely omitted.

X & Y: 00000 co-ordinates for 0 and X symbols in lines 430-470.

- Z. Counts number of squares filled to check for complete in lines 750 to 800.

The memory required is about 4K and the loading time from tape is 2 minutes.

Grand Prix

by Yr 20

In this game you have to bet on a racing car and then watch the race to see if you win or not. The odds for each car change for every race and depending if you have chosen the way or the hard game you are either told the odds before the race or not.

To select a car just enter the first letter — is P for purple — and state your bet. The program is fool-proof so you can't bet more than you got!

The betting is in lower case letters as this is the mode in which the program runs, as capital letters are easier to use for programming.

Program notes:

- Line 110-120 Data the odds for each race
- Line 130 The second print symbol is for cyan (in lower case)
- Line 140 The second print symbol is for yellow (in lower case)
- Line 210-220 Comments which car is

to next page

```

840 PRINTTAB(1,100) "YOU FAILED ON VERSION 1.4
850 END
860 ENDPROC
870 DEF PROC40M
880 CLS
890 PRINTTAB(5,100) "WELL BOME - YOU
    SUCCEEDED TO FOLLOW THE SEQUENCE"
900 END
910 ENDPROC
    
```



O and S Marks
by Chris Robinson

```

1000 0000 0000 0000 0000 0000 0000 0000 0000 0000
1010 0000 0000 0000 0000 0000 0000 0000 0000 0000
1020 0000 0000 0000 0000 0000 0000 0000 0000 0000
1030 0000 0000 0000 0000 0000 0000 0000 0000 0000
1040 0000 0000 0000 0000 0000 0000 0000 0000 0000
1050 0000 0000 0000 0000 0000 0000 0000 0000 0000
1060 0000 0000 0000 0000 0000 0000 0000 0000 0000
1070 0000 0000 0000 0000 0000 0000 0000 0000 0000
1080 0000 0000 0000 0000 0000 0000 0000 0000 0000
1090 0000 0000 0000 0000 0000 0000 0000 0000 0000
1100 0000 0000 0000 0000 0000 0000 0000 0000 0000
1110 0000 0000 0000 0000 0000 0000 0000 0000 0000
1120 0000 0000 0000 0000 0000 0000 0000 0000 0000
1130 0000 0000 0000 0000 0000 0000 0000 0000 0000
1140 0000 0000 0000 0000 0000 0000 0000 0000 0000
1150 0000 0000 0000 0000 0000 0000 0000 0000 0000
1160 0000 0000 0000 0000 0000 0000 0000 0000 0000
1170 0000 0000 0000 0000 0000 0000 0000 0000 0000
1180 0000 0000 0000 0000 0000 0000 0000 0000 0000
1190 0000 0000 0000 0000 0000 0000 0000 0000 0000
1200 0000 0000 0000 0000 0000 0000 0000 0000 0000
1210 0000 0000 0000 0000 0000 0000 0000 0000 0000
1220 0000 0000 0000 0000 0000 0000 0000 0000 0000
1230 0000 0000 0000 0000 0000 0000 0000 0000 0000
1240 0000 0000 0000 0000 0000 0000 0000 0000 0000
1250 0000 0000 0000 0000 0000 0000 0000 0000 0000
1260 0000 0000 0000 0000 0000 0000 0000 0000 0000
1270 0000 0000 0000 0000 0000 0000 0000 0000 0000
1280 0000 0000 0000 0000 0000 0000 0000 0000 0000
1290 0000 0000 0000 0000 0000 0000 0000 0000 0000
1300 0000 0000 0000 0000 0000 0000 0000 0000 0000
1310 0000 0000 0000 0000 0000 0000 0000 0000 0000
1320 0000 0000 0000 0000 0000 0000 0000 0000 0000
1330 0000 0000 0000 0000 0000 0000 0000 0000 0000
1340 0000 0000 0000 0000 0000 0000 0000 0000 0000
1350 0000 0000 0000 0000 0000 0000 0000 0000 0000
1360 0000 0000 0000 0000 0000 0000 0000 0000 0000
1370 0000 0000 0000 0000 0000 0000 0000 0000 0000
1380 0000 0000 0000 0000 0000 0000 0000 0000 0000
1390 0000 0000 0000 0000 0000 0000 0000 0000 0000
1400 0000 0000 0000 0000 0000 0000 0000 0000 0000
1410 0000 0000 0000 0000 0000 0000 0000 0000 0000
1420 0000 0000 0000 0000 0000 0000 0000 0000 0000
1430 0000 0000 0000 0000 0000 0000 0000 0000 0000
1440 0000 0000 0000 0000 0000 0000 0000 0000 0000
1450 0000 0000 0000 0000 0000 0000 0000 0000 0000
1460 0000 0000 0000 0000 0000 0000 0000 0000 0000
1470 0000 0000 0000 0000 0000 0000 0000 0000 0000
1480 0000 0000 0000 0000 0000 0000 0000 0000 0000
1490 0000 0000 0000 0000 0000 0000 0000 0000 0000
1500 0000 0000 0000 0000 0000 0000 0000 0000 0000
1510 0000 0000 0000 0000 0000 0000 0000 0000 0000
1520 0000 0000 0000 0000 0000 0000 0000 0000 0000
1530 0000 0000 0000 0000 0000 0000 0000 0000 0000
1540 0000 0000 0000 0000 0000 0000 0000 0000 0000
1550 0000 0000 0000 0000 0000 0000 0000 0000 0000
1560 0000 0000 0000 0000 0000 0000 0000 0000 0000
1570 0000 0000 0000 0000 0000 0000 0000 0000 0000
1580 0000 0000 0000 0000 0000 0000 0000 0000 0000
1590 0000 0000 0000 0000 0000 0000 0000 0000 0000
1600 0000 0000 0000 0000 0000 0000 0000 0000 0000
1610 0000 0000 0000 0000 0000 0000 0000 0000 0000
1620 0000 0000 0000 0000 0000 0000 0000 0000 0000
1630 0000 0000 0000 0000 0000 0000 0000 0000 0000
1640 0000 0000 0000 0000 0000 0000 0000 0000 0000
1650 0000 0000 0000 0000 0000 0000 0000 0000 0000
1660 0000 0000 0000 0000 0000 0000 0000 0000 0000
1670 0000 0000 0000 0000 0000 0000 0000 0000 0000
1680 0000 0000 0000 0000 0000 0000 0000 0000 0000
1690 0000 0000 0000 0000 0000 0000 0000 0000 0000
1700 0000 0000 0000 0000 0000 0000 0000 0000 0000
1710 0000 0000 0000 0000 0000 0000 0000 0000 0000
1720 0000 0000 0000 0000 0000 0000 0000 0000 0000
1730 0000 0000 0000 0000 0000 0000 0000 0000 0000
1740 0000 0000 0000 0000 0000 0000 0000 0000 0000
1750 0000 0000 0000 0000 0000 0000 0000 0000 0000
1760 0000 0000 0000 0000 0000 0000 0000 0000 0000
1770 0000 0000 0000 0000 0000 0000 0000 0000 0000
1780 0000 0000 0000 0000 0000 0000 0000 0000 0000
1790 0000 0000 0000 0000 0000 0000 0000 0000 0000
1800 0000 0000 0000 0000 0000 0000 0000 0000 0000
1810 0000 0000 0000 0000 0000 0000 0000 0000 0000
1820 0000 0000 0000 0000 0000 0000 0000 0000 0000
1830 0000 0000 0000 0000 0000 0000 0000 0000 0000
1840 0000 0000 0000 0000 0000 0000 0000 0000 0000
1850 0000 0000 0000 0000 0000 0000 0000 0000 0000
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1880 0000 0000 0000 0000 0000 0000 0000 0000 0000
1890 0000 0000 0000 0000 0000 0000 0000 0000 0000
1900 0000 0000 0000 0000 0000 0000 0000 0000 0000
1910 0000 0000 0000 0000 0000 0000 0000 0000 0000
1920 0000 0000 0000 0000 0000 0000 0000 0000 0000
1930 0000 0000 0000 0000 0000 0000 0000 0000 0000
1940 0000 0000 0000 0000 0000 0000 0000 0000 0000
1950 0000 0000 0000 0000 0000 0000 0000 0000 0000
1960 0000 0000 0000 0000 0000 0000 0000 0000 0000
1970 0000 0000 0000 0000 0000 0000 0000 0000 0000
1980 0000 0000 0000 0000 0000 0000 0000 0000 0000
1990 0000 0000 0000 0000 0000 0000 0000 0000 0000
2000 0000 0000 0000 0000 0000 0000 0000 0000 0000
2010 0000 0000 0000 0000 0000 0000 0000 0000 0000
2020 0000 0000 0000 0000 0000 0000 0000 0000 0000
2030 0000 0000 0000 0000 0000 0000 0000 0000 0000
2040 0000 0000 0000 0000 0000 0000 0000 0000 0000
2050 0000 0000 0000 0000 0000 0000 0000 0000 0000
2060 0000 0000 0000 0000 0000 0000 0000 0000 0000
2070 0000 0000 0000 0000 0000 0000 0000 0000 0000
2080 0000 0000 0000 0000 0000 0000 0000 0000 0000
2090 0000 0000 0000 0000 0000 0000 0000 0000 0000
2100 0000 0000 0000 0000 0000 0000 0000 0000 0000
2110 0000 0000 0000 0000 0000 0000 0000 0000 0000
2120 0000 0000 0000 0000 0000 0000 0000 0000 0000
2130 0000 0000 0000 0000 0000 0000 0000 0000 0000
2140 0000 0000 0000 0000 0000 0000 0000 0000 0000
2150 0000 0000 0000 0000 0000 0000 0000 0000 0000
2160 0000 0000 0000 0000 0000 0000 0000 0000 0000
2170 0000 0000 0000 0000 0000 0000 0000 0000 0000
2180 0000 0000 0000 0000 0000 0000 0000 0000 0000
2190 0000 0000 0000 0000 0000 0000 0000 0000 0000
2200 0000 0000 0000 0000 0000 0000 0000 0000 0000
2210 0000 0000 0000 0000 0000 0000 0000 0000 0000
2220 0000 0000 0000 0000 0000 0000 0000 0000 0000
2230 0000 0000 0000 0000 0000 0000 0000 0000 0000
2240 0000 0000 0000 0000 0000 0000 0000 0000 0000
2250 0000 0000 0000 0000 0000 0000 0000 0000 0000
2260 0000 0000 0000 0000 0000 0000 0000 0000 0000
2270 0000 0000 0000 0000 0000 0000 0000 0000 0000
2280 0000 0000 0000 0000 0000 0000 0000 0000 0000
2290 0000 0000 0000 0000 0000 0000 0000 0000 0000
2300 0000 0000 0000 0000 0000 0000 0000 0000 0000
2310 0000 0000 0000 0000 0000 0000 0000 0000 0000
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2330 0000 0000 0000 0000 0000 0000 0000 0000 0000
2340 0000 0000 0000 0000 0000 0000 0000 0000 0000
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2360 0000 0000 0000 0000 0000 0000 0000 0000 0000
2370 0000 0000 0000 0000 0000 0000 0000 0000 0000
2380 0000 0000 0000 0000 0000 0000 0000 0000 0000
2390 0000 0000 0000 0000 0000 0000 0000 0000 0000
2400 0000 0000 0000 0000 0000 0000 0000 0000 0000
2410 0000 0000 0000 0000 0000 0000 0000 0000 0000
2420 0000 0000 0000 0000 0000 0000 0000 0000 0000
2430 0000 0000 0000 0000 0000 0000 0000 0000 0000
2440 0000 0000 0000 0000 0000 0000 0000 0000 0000
2450 0000 0000 0000 0000 0000 0000 0000 0000 0000
2460 0000 0000 0000 0000 0000 0000 0000 0000 0000
2470 0000 0000 0000 0000 0000 0000 0000 0000 0000
2480 0000 0000 0000 0000 0000 0000 0000 0000 0000
2490 0000 0000 0000 0000 0000 0000 0000 0000 0000
2500 0000 0000 0000 0000 0000 0000 0000 0000 0000
2510 0000 0000 0000 0000 0000 0000 0000 0000 0000
2520 0000 0000 0000 0000 0000 0000 0000 0000 0000
2530 0000 0000 0000 0000 0000 0000 0000 0000 0000
2540 0000 0000 0000 0000 0000 0000 0000 0000 0000
2550 0000 0000 0000 0000 0000 0000 0000 0000 0000
2560 0000 0000 0000 0000 0000 0000 0000 0000 0000
2570 0000 0000 0000 0000 0000 0000 0000 0000 0000
2580 0000 0000 0000 0000 0000 0000 0000 0000 0000
2590 0000 0000 0000 0000 0000 0000 0000 0000 0000
2600 0000 0000 0000 0000 0000 0000 0000 0000 0000
2610 0000 0000 0000 0000 0000 0000 0000 0000 0000
2620 0000 0000 0000 0000 0000 0000 0000 0000 0000
2630 0000 0000 0000 0000 0000 0000 0000 0000 0000
2640 0000 0000 0000 0000 0000 0000 0000 0000 0000
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2700 0000 0000 0000 0000 0000 0000 0000 0000 0000
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2760 0000 0000 0000 0000 0000 0000 0000 0000 0000
2770 0000 0000 0000 0000 0000 0000 0000 0000 0000
2780 0000 0000 0000 0000 0000 0000 0000 0000 0000
2790 0000 0000 0000 0000 0000 0000 0000 0000 0000
2800 0000 0000 0000 0000 0000 0000 0000 0000 0000
2810 0000 0000 0000 0000 0000 0000 0000 0000 0000
2820 0000 0000 0000 0000 0000 0000 0000 0000 0000
2830 0000 0000 0000 0000 0000 0000 0000 0000 0000
2840 0000 0000 0000 0000 0000 0000 0000 0000 0000
2850 0000 0000 0000 0000 0000 0000 0000 0000 0000
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2950 0000 0000 0000 0000 0000 0000 0000 0000 0000
2960 0000 0000 0000 0000 0000 0000 0000 0000 0000
2970 0000 0000 0000 0000 0000 0000 0000 0000 0000
2980 0000 0000 0000 0000 0000 0000 0000 0000 0000
2990 0000 0000 0000 0000 0000 0000 0000 0000 0000
3000 0000 0000 0000 0000 0000 0000 0000 0000 0000
3010 0000 0000 0000 0000 0000 0000 0000 0000 0000
3020 0000 0000 0000 0000 0000 0000 0000 0000 0000
3030 0
```

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choose and sets the colour for each car
 Line 1000 Sets the cars at the starting line
 Line 1010-1015 Choose which cars move
 Line 1020-1025 Choose the first car
 Line 1030-1035 Plots the first car to its new position
 Line 1100-1105 Same as above, but for the other cars
 Line 1600-1605 Choose if you've won or not. If you have then prints out what you win.

It will be noticed during the program that once the race begins, that the race track edge and finish line are the colour of the car you have betted on.



Grand Prix

by Alan Pearce

```

10 PRINT "WELCOME TO THE GRAND PRIX RACE"
20 PRINT "PRESS ANY KEY TO START THE RACE"
30 INPUT "PRESS ANY KEY TO START THE RACE"
40 PRINT "THE RACE IS ON!"
50 PRINT "PRESS ANY KEY TO START THE RACE"
60 PRINT "PRESS ANY KEY TO START THE RACE"
70 PRINT "PRESS ANY KEY TO START THE RACE"
80 PRINT "PRESS ANY KEY TO START THE RACE"
90 PRINT "PRESS ANY KEY TO START THE RACE"
100 PRINT "PRESS ANY KEY TO START THE RACE"
110 PRINT "PRESS ANY KEY TO START THE RACE"
120 PRINT "PRESS ANY KEY TO START THE RACE"
130 PRINT "PRESS ANY KEY TO START THE RACE"
140 PRINT "PRESS ANY KEY TO START THE RACE"
150 PRINT "PRESS ANY KEY TO START THE RACE"
160 PRINT "PRESS ANY KEY TO START THE RACE"
170 PRINT "PRESS ANY KEY TO START THE RACE"
180 PRINT "PRESS ANY KEY TO START THE RACE"
190 PRINT "PRESS ANY KEY TO START THE RACE"
200 PRINT "PRESS ANY KEY TO START THE RACE"
210 PRINT "PRESS ANY KEY TO START THE RACE"
220 PRINT "PRESS ANY KEY TO START THE RACE"
230 PRINT "PRESS ANY KEY TO START THE RACE"
240 PRINT "PRESS ANY KEY TO START THE RACE"
250 PRINT "PRESS ANY KEY TO START THE RACE"
260 PRINT "PRESS ANY KEY TO START THE RACE"
270 PRINT "PRESS ANY KEY TO START THE RACE"
280 PRINT "PRESS ANY KEY TO START THE RACE"
290 PRINT "PRESS ANY KEY TO START THE RACE"
300 PRINT "PRESS ANY KEY TO START THE RACE"
310 PRINT "PRESS ANY KEY TO START THE RACE"
320 PRINT "PRESS ANY KEY TO START THE RACE"
330 PRINT "PRESS ANY KEY TO START THE RACE"
340 PRINT "PRESS ANY KEY TO START THE RACE"
350 PRINT "PRESS ANY KEY TO START THE RACE"
360 PRINT "PRESS ANY KEY TO START THE RACE"
370 PRINT "PRESS ANY KEY TO START THE RACE"
380 PRINT "PRESS ANY KEY TO START THE RACE"
390 PRINT "PRESS ANY KEY TO START THE RACE"
400 PRINT "PRESS ANY KEY TO START THE RACE"
410 PRINT "PRESS ANY KEY TO START THE RACE"
420 PRINT "PRESS ANY KEY TO START THE RACE"
430 PRINT "PRESS ANY KEY TO START THE RACE"
440 PRINT "PRESS ANY KEY TO START THE RACE"
450 PRINT "PRESS ANY KEY TO START THE RACE"
460 PRINT "PRESS ANY KEY TO START THE RACE"
470 PRINT "PRESS ANY KEY TO START THE RACE"
480 PRINT "PRESS ANY KEY TO START THE RACE"
490 PRINT "PRESS ANY KEY TO START THE RACE"
500 PRINT "PRESS ANY KEY TO START THE RACE"
510 PRINT "PRESS ANY KEY TO START THE RACE"
520 PRINT "PRESS ANY KEY TO START THE RACE"
530 PRINT "PRESS ANY KEY TO START THE RACE"
540 PRINT "PRESS ANY KEY TO START THE RACE"
550 PRINT "PRESS ANY KEY TO START THE RACE"
560 PRINT "PRESS ANY KEY TO START THE RACE"
570 PRINT "PRESS ANY KEY TO START THE RACE"
580 PRINT "PRESS ANY KEY TO START THE RACE"
590 PRINT "PRESS ANY KEY TO START THE RACE"
600 PRINT "PRESS ANY KEY TO START THE RACE"
610 PRINT "PRESS ANY KEY TO START THE RACE"
620 PRINT "PRESS ANY KEY TO START THE RACE"
630 PRINT "PRESS ANY KEY TO START THE RACE"
640 PRINT "PRESS ANY KEY TO START THE RACE"
650 PRINT "PRESS ANY KEY TO START THE RACE"
660 PRINT "PRESS ANY KEY TO START THE RACE"
670 PRINT "PRESS ANY KEY TO START THE RACE"
680 PRINT "PRESS ANY KEY TO START THE RACE"
690 PRINT "PRESS ANY KEY TO START THE RACE"
700 PRINT "PRESS ANY KEY TO START THE RACE"
710 PRINT "PRESS ANY KEY TO START THE RACE"
720 PRINT "PRESS ANY KEY TO START THE RACE"
730 PRINT "PRESS ANY KEY TO START THE RACE"
740 PRINT "PRESS ANY KEY TO START THE RACE"
750 PRINT "PRESS ANY KEY TO START THE RACE"
760 PRINT "PRESS ANY KEY TO START THE RACE"
770 PRINT "PRESS ANY KEY TO START THE RACE"
780 PRINT "PRESS ANY KEY TO START THE RACE"
790 PRINT "PRESS ANY KEY TO START THE RACE"
800 PRINT "PRESS ANY KEY TO START THE RACE"
810 PRINT "PRESS ANY KEY TO START THE RACE"
820 PRINT "PRESS ANY KEY TO START THE RACE"
830 PRINT "PRESS ANY KEY TO START THE RACE"
840 PRINT "PRESS ANY KEY TO START THE RACE"
850 PRINT "PRESS ANY KEY TO START THE RACE"
860 PRINT "PRESS ANY KEY TO START THE RACE"
870 PRINT "PRESS ANY KEY TO START THE RACE"
880 PRINT "PRESS ANY KEY TO START THE RACE"
890 PRINT "PRESS ANY KEY TO START THE RACE"
900 PRINT "PRESS ANY KEY TO START THE RACE"
910 PRINT "PRESS ANY KEY TO START THE RACE"
920 PRINT "PRESS ANY KEY TO START THE RACE"
930 PRINT "PRESS ANY KEY TO START THE RACE"
940 PRINT "PRESS ANY KEY TO START THE RACE"
950 PRINT "PRESS ANY KEY TO START THE RACE"
960 PRINT "PRESS ANY KEY TO START THE RACE"
970 PRINT "PRESS ANY KEY TO START THE RACE"
980 PRINT "PRESS ANY KEY TO START THE RACE"
990 PRINT "PRESS ANY KEY TO START THE RACE"

```

Open Forum

[illegible]

Methodology: Qualitative

This program illustrates how breakout and adventure games can be combined to produce educational effects.

The aim is to rescue Marion. After knocking four brothers off the sheriff's wall, he always obliges by indicating night's escape plan is locked on.

It hasn't kept it as simple as possible for encourage others to get along with the Blackstock Island children.

LIFE: Q6: Enter the co-ordinates for the station (Q); Use E7 for Station (q); Use E7 for the distance (Z); Use Z8 for the bearing (r); Use F 020 for the strike-slipness down the

How To Take

100

This program stores the value to be used in a `double` tag format block. It is meant to select which tables are required, and by inputting the function you want, the largest `int`, you can find the tag, or whatever function chosen, of that number. The same is true for `int` and `float`.

1000

[illegible][illegible]

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Programming

**A game that
will teach
the children**

David Howards offers some tips on ZN education to primary school children.

Looking through the advertisements of this, or any other mass magazine, one might be led to believe that the DSM is little more than a money-making machine. That, of course, greatly underestimates the importance of the DSM.

Although the business applications of this language are limited, the XML specification transcends national borders.

level of education. The frustration that many school children have for video games can be directed to produce a powerful educational tool. This tool and various levels of assessment given to the child, recently started at primary school.

Initiation of the program requires that the parent, or school teacher, submit a note which is shown to the child. The notes are filed in a child file, which can be saved with the records for each child.

For those interested in different methods of filing data, you might like to know that "Fluxmerge" uses an indexed sequential file.

Table 1

The child is given a randomly selected word from the data file with all the letters jumbled up. A series of choices appear on

that prepare. The order has to contain enough detail to give you some of the information by which the arbitrator will

The child is to visualize feelings on and off. When the child guesses a letter, the flash is replaced by the letter. If the child gets the word right, then another word is presented. If the word is wrong, the child gets another try.

Type in the program as listed, then Run. When all the words have been entered, press **TT** and Save the program and data on tape.

The game is useful in helping the child recognize and spell words. The program can be used over several years of the child's education.

It had been a long, stressful year for him, but he had to keep going. He had to keep going for his family, for his friends, for his country. He had to keep going for the world.

100

Figure 1

[illegible]

Spectrum

Use all your pixel power at random

Malcolm Dawlance presents three programs to create moving patterns on the screen.

These two pattern programs show off the Spectrum to the limits of its colour resolution and will make attractive additions to your library of demonstration programs. Both programs run in a similar manner — the screen fills, line by line, with what look like multi-coloured bar codes (similar to the black and white ones on your breakfast cereal packets) until the screen is filled like a colourful patch-work quilt.

The programs make use of the user-defined graphics feature of the Spectrum. It randomly accesses the computer char-

acter codes and uses the binary option to switch each pixel on or off in the character block, each row being identical. A colour mix is chosen at random and the graphical character defined moved to the next available print position. A new character code is chosen at random, another user-defined graphic character copied and the process repeated until the screen is full.

A 'no operation' instruction 'NO-OP' prevents the end of program message appearing and spoiling the pattern — and so the program has to be stopped using the 'Break' and 'Shift' keys.

The second program is identical in most respects to the first, except that the lower half of the graphic character is the mirror of the top half. This effectively doubles the number of horizontal lines on the screen and so gives a finer pattern. I will leave you with the fun of making the pattern even finer.

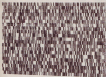
Another alternative would be to apply a limited number of graphic characters and

to repeat them in a methodical manner to produce a repeating pattern. This could be developed to home-weaving or tapestry enthusiasts to design new material designs.

The third program develops an idea in the Spectrum Manual (Chapter 10). It provides a full screen scrolling display of five columns of differing coloured bars.

Occasionally, to relieve the monotony, the border colour changes and the whole show starts again. The performance will greatly outlast your patience and you may escape from the program simply by using the 'Break' and 'Shift' keys in the usual way.

Keep that lines 15 and 1645 ensure that the screen constantly scrolls without manual intervention. The two pause statements slow the display so that it is almost leisurely to watch. You will note that inverted paper patterns are created, but the Spectrum manually saves the program so that further coding and substitutions is easy.



Pattern 1



Pattern 2



Sound & vision



Now drown all your sorrows

Seeing is a real time graphics game for the BBC micro where you are a little rat man constantly chased around the screen by greeds, green gremlins. As they pursue you miserably, your only hope is to lure them into the safety trapdoor where they drown.

You move about using the cursor keys. However, you may press the space bar to enter 'hyperspace' if you get into trouble. Only do this in emergencies. You may lose yourself too if you use it too many times.

Program notes

Line 10 prints 'SUSAN' in double height characters: `(CH$)(141)` in blue, `(CH$)(255)-(CH$)(255)` in 4/3.4.1 makes the cursor blink left-right after an `ABS` in code `4/3.4.2` restores line. `4/3.11.1` changes the repeat delay to one millisecond and `4/3.12.1` changes the repeat speed. `4/3.9` and `4/3.10` change the flash rate.

Line 754 prints `(8+32+17, 37-15-35-17)` returns the value of the pixel which is in the middle of the '144-15.77' position in mode 1 of 4. If line 754 is not included, line 755 gives 'count' the value of -1. Why it should do this I do not know. If anyone finds out please write in and let me know.

This program was written on a model B. If you want to try it on a model A, change the following lines:

```
to 1000 4
to 1000 1
to 1 1
to 1000 100 100 100
```

Contributor

We can share your own favourite Sound or Vision programs with other readers by sending lists with explanations to us at **Popular Computing Weekly**.

WRITE TO: Sound & Vision, Popular Computing Weekly, Marlowe Court, 10 Marlowe Green, London N22 7DF.

```

10 REM ***** SOUND & VISION *****
20 REM ***** BASIC *****
30 REM ***** BASIC *****
40 REM ***** BASIC *****
50 REM ***** BASIC *****
60 REM ***** BASIC *****
70 REM ***** BASIC *****
80 REM ***** BASIC *****
90 REM ***** BASIC *****
100 REM ***** BASIC *****
110 REM ***** BASIC *****
120 REM ***** BASIC *****
130 REM ***** BASIC *****
140 REM ***** BASIC *****
150 REM ***** BASIC *****
160 REM ***** BASIC *****
170 REM ***** BASIC *****
180 REM ***** BASIC *****
190 REM ***** BASIC *****
200 REM ***** BASIC *****
210 REM ***** BASIC *****
220 REM ***** BASIC *****
230 REM ***** BASIC *****
240 REM ***** BASIC *****
250 REM ***** BASIC *****
260 REM ***** BASIC *****
270 REM ***** BASIC *****
280 REM ***** BASIC *****
290 REM ***** BASIC *****
300 REM ***** BASIC *****
310 REM ***** BASIC *****
320 REM ***** BASIC *****
330 REM ***** BASIC *****
340 REM ***** BASIC *****
350 REM ***** BASIC *****
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Peek & poke

Peek your problems to our address, Ian Boardman will poke back an answer.

WHICH ONE SHALL I BUY, THEN?

Edward Broad, Loughborough, Leics, writes

Q I have recently been thinking about buying a home computer, but I have come up against a problem. I do not know whether to buy a Spectrum or a Vixi. Could you please tell me which is best and why.

A We get at least one letter a week like this, and usually more. I cannot tell you which computer to buy. It is your money you are spending and the choice of which computer to buy is subjective.

It is not difficult to find strong support among users for both computers. The best I can do is give you, and many other people who have asked this question, some general guidelines.

First money. The Spectrum will offer you the cheapest, colour graphics entry into computing at the moment. The Vixi has a dealer network that the Spectrum does not. If anything goes wrong with your Spectrum then it will have to go back to the factory. As yet there is no little Spectrum software about to really gauge prices, but Z8000 software is very much cheaper than Vixi software.

In terms of capacity, both latest and realised, then the Spectrum must be better. If you bought the more expensive Spectrum for £175, it would be possible to get a basic Vixi for about the same price, but the Vixi would have 1.5K Rom available to the user while the Spectrum has just over 4K available.

The Vixi also drive will give you 1.44, but just under 440. If the Microdrive, planned for release later this year, does meet its quoted specifications then such Microdrive will be able to supply 100K for about £80.

The other fact to keep in mind is that there are more companies dealing with hardware and software for the Spectrum than for any other machine. It is safe to assume that most of

these companies will be turning their attention to the Spectrum next year.

When you come to choosing your computer, write down what you want your computer to do, what you want it to do and what you want to pay. If you want a games machine, then take a close look at the Vixi or wait for the Vixi. You might also be interested in the Atari 400 which has just been released from £100 to £130.

If you think that you are going to want to store a lot of information, and develop an expanded and versatile system, then you might find the extra cost of a BBC more worthwhile. If you are not really sure what you want, then a factory-built, supported, IBM PCXT might prove to be the cheapest way of learning. The Spectrum is probably the best value for money; it has most of the facilities that the Vixi and Atari have, and more money.

In PCW June 17 we published a brief but useful overview of the Z8, BBC and Vixi computers. But, please note that the Spectrum we used for tests was a pre-production model that had faults which were corrected on the production units.

GIVE US THE FAX ON CIBAFIX

P.J. Mowbray of The PC Store, Thorpe Wilborough, Leics, writes

Q I am very interested in reading about new items for the ZX81. I am also very interested in the BBC's Cefix transmission. I was wondering whether or not there was an attachment that will fit on to the CPM, so it can receive telegrams. If you know of one please could you print the details in Popular Computing Weekly.

A To my knowledge there is no Cefix adapter for the ZX81, and I doubt if there is one planned at the moment. If you have the May 27 edition of PCW you will see an item on the next page about the competition to develop a Pro-

tel adapter for the ZX81. Manchester Ltd, who won the competition, should be marketing their adapter by Christmas.

As far as I know, the only other such adapter is being developed by Lion Teledata of 18 Harcourt Terrace, London SW10. They also have on the market a dedicated Telex/Prose/Video adapter. This would cost you just over £100. However, it also needs an RSCC interface. This alone would make it difficult for the ZX81, though not necessarily for other home computers such as the Spectrum.

BUT WHAT DOES IT ALL MEANT

J. Simmons of The Court, London W9, writes

Q I am 14 and I have just started learning computing. I am at the moment using an Acorn Atom, but I am a little confused. Could you please tell me what it does, and what that stands for?

A The Atom sign I find the first function are extremely commands. The Atom sign is another way of saying it can be used for letters and numbers, or characters. Things are ways of representing information. A simple example would be a two's programming in Pascal is

If you use the program, I (SOLARIS) will appear.

The first statement simply sets a random number. Then, a statement like Z=ABS(RND*(10+1)) would make the computer produce a positive number (1-100) between one and eight. The final makes it in effect random, and the eight gives the highest number.

IF I MAY MAKE SO BOLD

Robin Ald, Peckham, Wicks, Leics, writes

Q I continually realised that there were no programs available a Vixi user to convert ordinary Basic into machine code. Do you know of

any? More importantly, is it possible to put a Basic program into the Vixi, and get a machine code routine out?

A Also, I have been looking for cheap adapters, but have been put off by the prices. I have found that games offered for two and three pounds were considered to be too cheap. Personally I would buy them if they were just a pound, even if they were rubbish. So, please use your influence with the manufacturers to get them to bring down prices.

Can you also tell me what is an assembler-disassembler. I get put off buying books that do not tell you what they do in plain English.

A There are programs that use machine code, and Basic to run programs, but you cannot put machine code in one and get a Basic translation out of the other.

As for the price of software, that is always a point of contention. I feel that it costs more prices are too high. This will only lead to attempts at piracy and, as the record industry has shown, that can have disastrous results.

I do not agree with you about buying programs that are rubbish. A bad program is worth very little more than the value of a second-hand CD or cassette.

An assembly language is not easy to describe in the space I have here. It is essentially a language that is halfway from machine code, which is known as a low level language and a language like Basic which is high level language. Although an assembly language works in machine code, the commands have many similarities to a higher level language.

STOP agonising over that nagging problem. Write to Ian Boardman at Peek & poke for the answer. Letters should be as brief as possible and include full name and address. Write to Peek & poke, Popular Computing Weekly, Robinson Court, 18 Harcourt Street, London SW10 1HP.



"...the quality of the colour display is excellent". Popular Computing Weekly.

"The graphics facilities are great fun". Personal Computer World.

"...the Spectrum is way ahead of its competitors". Your Computer.

"The world's best personal computer for under £500."

Chris Sinclair

Sinclair ZX Spectrum 16K RAM £125, 48K RAM £175.

This extraordinary new ZX Spectrum - a powerful professional computer in everything but price!

There are two versions - 16K or a really powerful 48K. Both have a full 800000, sound generation, a full-size moving key keyboard and high-resolution graphics. Plus established Sinclair features such as one-touch keyword entry, syntax checks and report codes!

Key features of the Sinclair ZX Spectrum

Full colour - 8 colours plus flashing and brightness-intensity control.

Sound - 8000Hz channel with variable pitch and duration.

Massive RAM - 16K or 48K.

Full size moving key keyboard - all keys at normally-preset pitch, with repeat facility on each key.

High resolution - 256000 horizontally x 192 vertically, each individually addressable for true high-resolution graphics.

ASCII character set - with upper and lower-case characters.

High speed I/O & (A)R - 10K in 100 seconds via cassette, with 1000K and 10000K for programs and separate data files.

The ZX Printer - available now

The printer offers ZX Spectrum owners the full ASCII character set - including lower-case characters and high-resolution graphics.

Printing speeds 80 characters per second, with 32 characters per line and 8 lines per vertical inch.

ZX Microdrive - coming soon

Each Microdrive will hold up to 100K bytes on a single interchangeable microfloppy - with a transfer rate of 10K bytes per second. And you'll be able to connect up full ZX Microdrives to your ZX Spectrum - they're available later this year, for around £50.

How to order your ZX Spectrum (UK only) - Access, Barclaycard or Trustcard holders can call 01-2000000 for personal attention 24 hours a day, every day.

BY FREEPOST - use the coupon below. You can pay by cheque, postal order, Access, Barclaycard or Trustcard. £1000+ only - please allow up to 10 days for delivery. And there's a 14-day money-back option, of course. We want you to be satisfied beyond doubt - and we have no doubt that you will be.

sinclair ZX Spectrum

Sinclair Research Ltd,
Grange Road, Camberley, Surrey,
GU10 2PH. Tel: Camberley 0207/355010

Qty	Item	Unit	Quantity	Total
	Sinclair ZX Spectrum - 16K or 48K	£125 / £175		
	Sinclair ZX Printer	£100		
	Sinclair ZX Microdrive	£50		
	Sinclair ZX Keyboard	£25		
	Printer paper (A4)	£10		
	Printer and keyboard	£10		
	10000K I/O	£10		
	10000K I/O	£10		
	TOTAL			

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